

CLAIMS

What is claimed is:

1. A volume hologram recording material comprising a polymer matrix having a three-dimensional crosslinking structure having a plurality of reactive groups, the polymer matrix being capable of recording, by means of refractive index difference, interference fringes that result from the interference of coherent light, the material not having a polymerizable monomer as a constituent for recording a hologram.

2. The volume hologram recording material according to Claim 1, wherein the material comprises a polymer matrix having a three-dimensional crosslinking structure in which a plurality of crosslinking reactive groups are present in a dispersed manner, the crosslinking reactive groups undergoing a crosslinking reaction on irradiation with energy rays that generate interference fringes within the polymer matrix by interference of coherent light, and differences in refractive index corresponding the interference fringes being generated within the polymer matrix.

3. The volume hologram recording material according to either Claim 1 or Claim 2, wherein the material comprises as constituents a polymer matrix having a three-dimensional crosslinking structure having a plurality of reactive groups and a tertiary amine compound.

4. The volume hologram recording material according to any one of Claim 1 to Claim 3, wherein the material further comprises as a constituent a nonreactive compound that is compatible with the polymer matrix.

5. The volume hologram recording material according to any one of Claim 1 to Claim 4, wherein the polymer matrix is formed by addition polymerization of a polyol and a polyisocyanate.

6. The volume hologram recording material according to any one of Claim 1 to Claim 5, wherein the reactive group is a radically polymerizable group.

7. The volume hologram recording material according to any one of Claim 1 to Claim 6, wherein the concentration of the reactive group in the polymer matrix is at least 0.2 mol/kg but no greater than 10 mol/kg.

8. A volume hologram recording medium for recording, by means of refractive index difference, interference fringes that result from the interference of coherent light, the

medium comprising a recording layer having a thickness of 100 μm or greater, and the recording layer comprising the volume hologram recording material according to any one of Claim 1 to Claim 7.